

## Claims

- [c1] A method for improving compression of data, comprising:  
arranging the data on a mixed format physical layout;  
dividing the data on a mixed format physical layout into fixed-sized fields and variable sized fields; and  
compressing the data of the variable sized fields and the fixed-sized fields.
- [c2] The method defined in claim 1, further comprising:  
storing sizes of the fixed-sized fields in a data dictionary;  
storing frequency of the data in the fixed-sized fields and the variable-sized fields in the data dictionary; and  
storing information common to all records in the fixed-sized fields and variable sized fields in the data dictionary.
- [c3] The method defined in claim 1, wherein the fixed-sized fields further comprise field values.
- [c4] The method defined in claim 1, wherein the fixed-sized fields further comprise field offsets.
- [c5] The method defined in claim 1, wherein the fixed-sized fields further comprise pointers into the data dictionary.
- [c6] The method for compressing the data in the fixed-sized fields as defined in claim 3, further comprising:  
storing a field value of the fixed-sized field in an additional variable-sized field;  
coding the value of the fixed-sized field as of a field offset by pointing the field offset to the additional variable-sized field.
- [c7] The method for compressing the data in the variable-sized fields as defined in claim 3, further comprising:  
storing frequently occurring long values of the fields in the data dictionary;  
coding a value of the variable-sized field as of the field offset by pointing the field offset into the data dictionary, wherein the value of the variable-sized field is a redundant value.

[c8] The method for compressing the data in the variable-sized fields as defined in claim 5, further comprising:  
coding a value of the variable-sized field as of the field offset by encoding the field offset into a record, wherein the value of the variable-sized field is a non-redundant value.

[c9] The method for compressing the data in the variable-sized fields as defined in claim 3, further comprising:  
storing frequently occurring long values of the fields in a second data dictionary, wherein the second data dictionary is larger than the data dictionary;  
coding a value of the variable-sized field as of the field value by pointing the field value into the second data dictionary, wherein the field offset is not large enough for the second data dictionary.

[c10] A method for improving compression of data, comprising: arranging the data on a mixed format layout, wherein the data comprises of a group of correlated fields;  
dividing the data on a mixed format physical layout into fixed-sized fields and variable-sized fields; and  
compressing the data of the variable-sized fields and the fixed-sized fields.

[c11] The method defined in claim 10, further comprising:  
storing sizes of the fixed-sized fields in a data dictionary; storing frequency of the data in the fixed-sized fields and the variable-sized fields in the data dictionary;  
storing information common to all records in the fixed-sized fields and variable sized fields in the data dictionary.

[c12] The method defined in claim 10, wherein the fixed-sized fields comprise of field values.

[c13] The method defined in claim 10, wherein the fixed-sized fields comprise of field offsets.

[c14] The method defined in claim 10, wherein the fixed-sized fields comprise of pointers into the data dictionary.

[c15] The method for compressing the data as defined in claim 12, further comprising:  
storing frequently occurring values for the group of correlated fields in the data dictionary; and  
coding a frequently occurring value for the group by pointing the field offset, belonging to the group, to the data dictionary.

[c16] The method for compressing the data as defined in claim 15, further comprising:  
coding an infrequently occurring value for the group, wherein the field offset, belonging to the group, points to the record in the field.

[c17] The method for retrieving compressed data, comprising:  
receiving a request for data in a compressed database;  
receiving compressed database on a mixed format physical layout responsive to the request, wherein the mixed format physical layout comprises of fixed fields and variable fields;  
searching for a value in the fixed fields corresponding to the request for data;  
retrieving the value in the fixed fields corresponding to the requested data.

[c18] The method defined in claim 17, wherein the retrieving step further comprises:  
retrieving a dictionary entry if the value of the fixed field comprises of a dictionary pointer;  
retrieving a value starting from a field offset if the value of the fixed field comprises of the field offset; and  
retrieving a same field from that record, if the value of the fixed field comprises of a record offset.

[c19] An apparatus for improving compression of data, comprising:  
means for arranging the data on a mixed format physical layout;  
means for dividing the data on a mixed format physical layout into fixed-sized fields and variable sized fields; and  
means for compressing the data of the variable sized fields and the fixed-sized fields.

[c20] An apparatus for retrieving a compressed data, comprising:  
means for receiving a request for decompressing a requested compressed data;  
means for receiving the compressed data on a mixed format physical layout  
responsive to the request, wherein the mixed format physical layout comprises  
of fixed fields and variable fields;  
searching for a value in the fixed fields;  
means for retrieving the value in the fixed fields corresponding to the requested  
compressed data.

[c21] A compressible computer medium, comprising a plurality of instructions to  
cause a computer to perform the steps of:  
arranging the data on a mixed format physical layout;  
dividing the data on a mixed format physical layout into fixed-sized fields and  
variable sized fields; and  
compressing the data of the variable sized fields and the fixed-sized fields.

[c22] The compressible computer medium according to claim 21, wherein the  
instructions further cause the computer to perform the steps of:  
storing sizes of the fixed-sized fields in a data dictionary;  
storing frequency of the data in the fixed-sized fields and the variable-sized  
fields in the data dictionary;  
storing information common to all records in the fixed-sized fields and variable  
sized fields in the data dictionary.

[c23] The compressible computer medium of claim 21, wherein the fixed-sized fields  
comprise of field values.

[c24] The compressible computer medium of claim 21, wherein the fixed-sized fields  
comprise of field offsets.

[c25] The compressible computer medium of claim 22, wherein the fixed-sized fields  
comprise of pointers into the data dictionary.

[c26] The compressible computer medium according to claim 23, wherein the  
instructions further cause the computer to perform the steps of:  
storing a value of the fixed-sized field in an additional variable-sized field;

coding the value of the fix-sized field as of a field offset by pointing the field offset to the additional variable-sized field.

[c27] The compressible computer medium according to claim 23, wherein the instructions further cause the computer to perform the steps of:  
storing frequently occurring long values of the fields in the data dictionary;  
coding a value of the variable-sized field as of the field offset by pointing the field offset into the data dictionary, wherein the value of the variable-sized field is a redundant value.

[c28] The compressible computer medium according to claim 25, wherein the instructions further cause the computer to perform the steps of:  
coding a value of the variable-sized field as of the field offset by encoding the field offset into a record, wherein the value of the variable-sized field is a non-redundant value.

[c29] The compressible computer medium according to claim 23, wherein the instructions further cause the computer to perform the steps of:  
storing frequently occurring long values of the fields in a second data dictionary, wherein the second data dictionary is larger than the data dictionary;  
coding a value of the variable-sized field as of the field value by pointing the field value into the second data dictionary, wherein the field offset is not large enough for the second data dictionary.